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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,447	01/13/2004	Shuya Shinohara	TAN-331	1085

35777 7590 04/13/2007

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EXAMINER	
SELLERS, ROBERT E	
ART UNIT	PAPER NUMBER
1712	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/755,447	SHINOHARA ET AL.	
	Examiner	Art Unit	
	Robert Sellers	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5,8 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 5, 8 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

This is responsive to the Request for Continued Examination and amendment filed February 16, 2007.

1. The certified English translation filed February 16, 2007 on page 7, lines 12-13 confirms the minimum weight average molecular weight of 10,000 or more in claim 11 which represents the translation of page 6, line 9 of the Japanese version filed January 13, 2004.

The text of sections 112 and 103(a) of Title 35, U.S. Code not included in this action can be found in the non-Final rejection mailed March 14, 2007.

Claim 11 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement: The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the application was filed.

2. There is no support for the claimed "epoxy equivalent of 2,100 g/eq ***or greater***" in the last two lines of claim 11 [emphasis added]. The original English version of the specification filed May 17, 2004 on page 6, line 2 as well as the certified translation of the Japanese version filed February 16, 2007 on page 7, line 26 merely substantiates the exact value of 2100 g/eq as opposed to claimed broader range of 2,100 g/eq or greater.

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The general formula $-C(R_5)(R_6)$ is a hydrocarbyl group and is not an epoxy resin as denoted in line 8. More favorable consideration would be given to the replacement of the phrase "epoxy resin represented by" with "or" as defined in claim 1, lines 5-6.

Claims 1, 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann Patent No. 4,153,621.

Claims 1, 2, 5, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. Patent No. 7,063,914 (the patent of Publication No. 2003/0175571) in view of Hartmann.

4. Hartmann (col. 3, lines 1-41) depicts a tetraalkylbiphenol-advanced diglycidyl ether of tetrahydrocarbylbiphenol wherein the repeating unit quantified by "n" is the identical range as claimed of 0 or more (col. 3, line 24). The extent of "n" embraces higher values leading to higher molecular weights and higher epoxy equivalents (col. 3, lines 38-41). It would have been obvious to react the epichlorohydrin and biphenol at a ratio towards 2:1 to attain a weight average molecular weight and epoxy equivalent within the confines of claim 11.

5. Kawano et al. (col. 2, lines 22-40) shows a tetrahydrocarbylbisphenol F advanced diglycidyl ether of tetrahydrocarbylbisphenol F of general formula (1) conforming to claimed general formula (2) wherein X is $-CH_2-$ and the repeating unit quantified by "n" is from 0-15 embraced by the claimed value for "n" of 0 or more. The epoxy resin of general formula (1) of Kawano et al. inherently possesses a weight average molecular weight and epoxy equivalent within the parameters of claim 11 based on the equivalent epoxy resin structure and value for the repeating unit "n."

The arguments presented with the non-entered amendment after Final rejection filed December 15, 2007 have been considered but are unpersuasive.

6. Hartmann et al. in column 10, lines 5-8 shows a noncrystallized diglycidyl ether of 3,3',5,5'-tetramethylbiphenol (col. 9, Example 1, lines 17-18). Although the epoxide equivalent of 272 is lower than that required in claim 11, it is well within the purview of patentees to prepare a diglycidyl ether of tetrapmethylbiphenol with a higher weight average molecular weight and epoxide equivalent to within the claimed limits by reducing the epichlorohydrin:3,3',5,5'-tetramethylbiphenol ratio from the 10:1 employed in Example 1 to the 2:1 disclosed in column 3, lines 38-41).

7. Column 5, lines 35-40 teaches the extension of the diglycidyl ethers of tetraalkylbiphenols with aromatic dihydroxy compounds to form higher molecular weight prepolymers. It would have been obvious to extend the diglycidyl ether of tetraalkylbiphenol of Hartmann with an aromatic dihydroxy compound such as a tetraalkylbiphenol to yield a higher molecular weight prepolymer within the boundaries of claim 11.

8. Claims 1, 2, 5 and 8 are directed to a non-crystalline epoxy resin of general formula (2) obtained by reacting a liquid epoxy esin and aromatic dihydric phenol compound of general formula (1), thereby constituting a product-by-process claim.

According to MPEP § 2113, "Product-by-Process Claims":

> "[E]ven though the product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d. 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).
>
> "Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d. 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983)."

The formula for the tetraalkylbiphenol-advanced diglycidyl ether of tetraalkylbiphenol illustrated in columns 3-4, about lines 1-10 is embraced by claimed general formula (2). There is no evidence of record establishing an unobvious difference between the prior art and claimed diglycidyl ethers of 3,3',5,5'-tetramethylbiphenol.

9. Nowhere is there any characterization in Kawano et al. of the tetrahydrocarbylbisphenol F advanced diglycidyl ether of tetrahydrocarbylbisphenol F of general formula (1) as crystalline (col. 2, lines 22-40). The teachings of a reference are not confined to the examples. Although the exemplified tetramethylbisphenol F epoxy resin YSLV-80XY (col. 7, lines 59-61) is designated as crystalline on page 10, Reference Example 1 of the instant specification, the identification of a softening temperature range from 75-80°C as opposed to a distinct melting point indicates the amorphous nature of the polymer, thereby establishing a non-crystalline state. Note that Reference Example 1 further manipulates the YSLV-80XY by heating to fusion and mixed with a diglycidyl ether of 3,3',5,5'tetramethyl-4,4'-dihydroxydiphenyl prior to crystallization, which is not representative of the untreated YSLV-80XY in Kawano et al.

10. The motivation to prepare higher molecular weight diglycidyl ethers by reacting the epichlorohydrin and dihydic phenol at a molar ratio towards 2:1 is affirmatively set forth in column 3, lines 38-41 of Hartmann and is not based on hindsight. It would have been obvious to form the diglycidyl ethers of Hartmann et al. and Kawano et al. at molar ratios of epichlorohydrin to dihydric phenol approaching 2:1 in order to produce predominantly higher molecular weight diglycidyl ethers to the exclusion of the monomeric species wherein n = 0 to within the extent of 60% or less required in claim 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Sellers whose telephone number is (571) 272-1093. The examiner can normally be reached on Monday to Friday from 9:30 to 6:00. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

rs
4/11/2007

ROBERT E.L. SELLERS
PRIMARY EXAMINER